be found by reference to the index of the volume. Four lithographs, numerous good woodcuts, and a well-compiled map (by Lowry) illustrate this really amusing and instructive volume of Mexican travel.

PROCEEDINGS OF LEARNED SOCIETIES.

ZOOLOGICAL SOCIETY.

December 10, 1861.—Professor Busk, F.R.S., in the Chair.

On a New Species of Plectropoma from Australia. By Dr. Albert Günther.

Plectropoma Richardsonii.

D. $\frac{10}{18}$. A. $\frac{3}{8}$. L. lat. 105.

The height of the body is contained four times and a half in the total length, the length of the head three times and a quarter. Interorbital space concave, half as wide as the orbit. Snout conical, with the lower jaw produced. Cleft of the mouth wide, the maxillary extending behind the orbit. Dentition very strong; the upper jaw with a patch of cardiform teeth in front, and a narrow villiform band on the side; there is a very long curved canine tooth on the outer side of the cardiform teeth, followed by a series of five or six teeth of moderate size. Lower jaw with a pair of very strong canines anteriorly, and with four or five strong, canine-like teeth on the side. The upper canines are received in a notch behind those of the lower jaw. Vomerine and palatine teeth in a narrow band, the former angularly bent.

Lower jaw more than half as long as the head. Præopercular margin rounded, finely serrated posteriorly, and with a small spine on the middle of its inferior margin, pointing forwards. Pectoral rounded, scaly at the base, as long as the mandible; ventral not quite half as long as the head. The spinous dorsal is separated from the soft by a very deep notch: the spines are rather slender; the fifth and sixth are the longest, one-fourth of the length of the head. The soft portion higher than the spinous, with the upper margin nearly even; base scaly. The second anal spine as long as, but stronger than, the third. Caudal truncated.

Upper part of the head, cheeks, back of the trunk, and the spinous dorsal bright red; the remainder of the fish yellow, with a very broad, irregular, brown band from the axil to the lower half of the caudal. Head and upper parts of the body with scattered irregular small blue spots, most of which are edged with brown; the brown band with large dark-brown spots. Fins immaculate, except the spinous dorsal, which has a few small blue spots.

Freemantle (Australia).

Length $15\frac{1}{2}$ inches.

The nearest ally of this species is *Plectropoma dentex*, Cuv. & Val.;

but the coloration, as represented in the 'Voyage de l'Astrolabe' (Poiss. pl. 4. fig. 2), is so entirely different that we cannot refer our specimen to that species. *Pl. dentex* has been figured for the second time in the 'Voyage of the Erebus and Terror,' pl. 57, from a stuffed specimen in the British Museum. This specimen agrees well with *Pl. Richardsonii* in general form, but its original colours have nearly entirely gone; large round light blotches are still visible on the side of the body, but there is no trace left of the white spots on the back. Whether this specimen belongs to *Pl. dentex* or to *Pl. Richardsonii* is impossible to say; probably it is referable to the former.

January 28, 1862.—Dr. J. E. Gray, F.R.S., V.P., in the Chair.

On the Skull of the Japanese Pig (Sus pliciceps). By Dr. J. E. Gray, F.R.S., &c.

I have lately had the opportunity of examining the skull of this animal, and now lay before the Society the reasons which induce me to believe that it is a distinct species—and a hitherto undescribed species—of the genus *Sus*, which has as yet only been observed in its domesticated state.

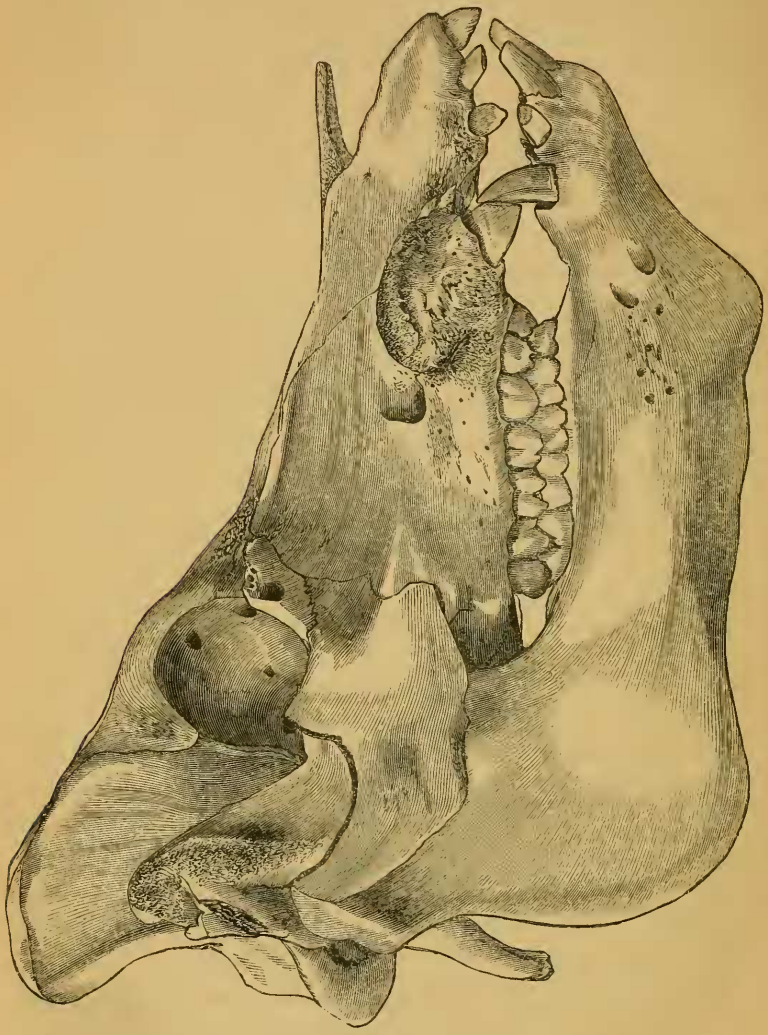
Some time ago, when Mr. Bartlett showed me the Japanese Pig which he had purchased, I was convinced of its belonging to a distinct species, and urged him to send an account of the animal, illustrated with a portrait of its very curious and characteristic face, to the 'Proceedings' of the Society.

The skulls of the domestic varieties of the common Pig, which are bred in Europe, differ but little from the skull of the European Wild Boar.

The skulls of the common domestic Pig, which we have in the British Museum, for example, chiefly differ from the skull of a Wild Boar from Germany in the same collection in being smaller and considerably shorter, and in the angle of the forehead being much more acute and sudden, caused by the back of the two skulls being nearly of the same height, while that of the domestic one is generally much the shortest in length. The position and size of the holes for the blood-vessels and nerves are nearly the same in all these skulls. The underside of these two skulls and the forms of the palates are also very similar. The lower jaws are equally similar. Cuvier, in his 'Ossements Fossiles' (vol. iii. Cochon, pl. 1. f. 1, 2, figure of the skull), well represents the skull of our domestic Pig. Blainville, in his 'Ostéographie des Mammifères' (Genus *Sus*, pl. 14), figures the skulls of three male Wild Boars, and of a male and female domestic Pig, and on pl. 5. two skulls of *Sus indicus*, one from Malabar and the other from Siam, and one of the *Sus vittatus* from Java. These skulls all have very much the same appearance, and bear no relation to the skull of the Japanese Pig under consideration.

The skull of the Japanese Pig chiefly differs from the skull of the Wild Pigs of Europe, India, and Java, above referred to, and from

that of the common domestic Pig, in being shorter, and much higher in front, especially from the greater height of the front of the lower jaw at the gonyx; in the forehead of the skull being rather concave before the orbits, flattened, and furnished with a sharp-keeled edge on each side, producing a deep concavity on each cheek in front of the orbit; in the palate being much broader for its length, and the series of the teeth wider apart and rather arched.



Skull of *Sus pliciceps*.

In the height of the front of the skull, in the flatness of the nose in front of the orbit, in the concavity of the cheek, and in the

broadness of the palate, the skull of the Japanese Pig bears some relation to the skull of the *Potamochœrus penicillatus*; but the lateral ridges of the nose are not so dilated, while the skull is higher in front, and the palate is wider in the Japanese Pig than in the same parts of *Potamochœrus*.

In the wild Pigs of Europe, India, and Java, and in the European domestic varieties, the nose of the skull is always narrow and rounded on the sides, and the palate is narrow.

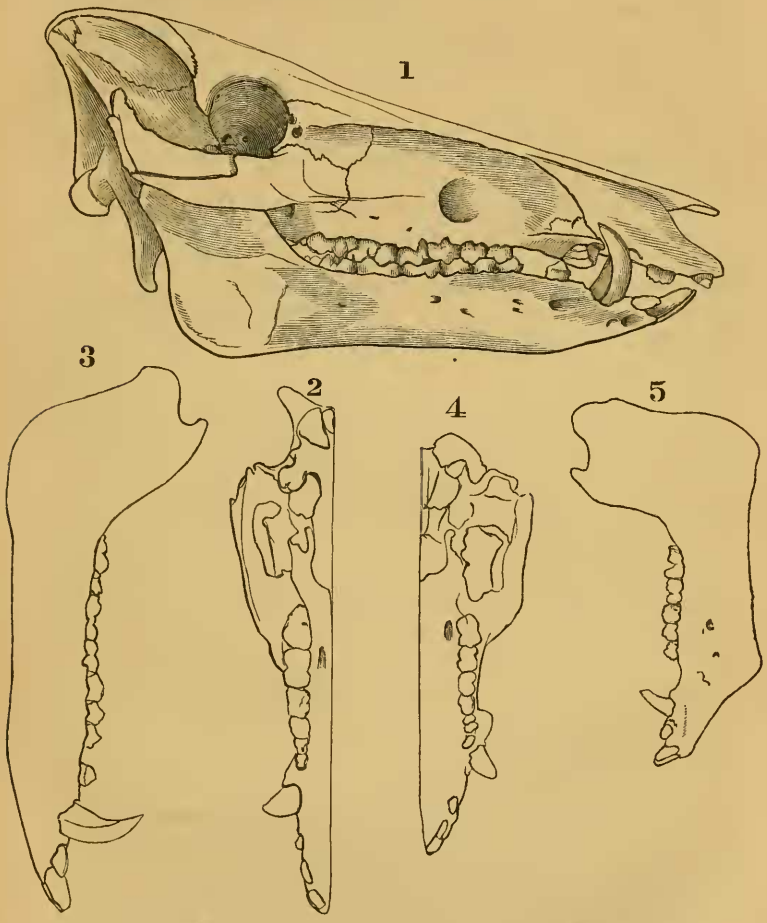


Fig. 1. Skull of *Sus scrofa ferus.*
2. Palate of *Sus scrofa ferus.*
3. Lower jaw of *Sus scrofa ferus.*

Fig. 4. Palate of *Sus pliciceps.*
5. Lower jaw of *Sus pliciceps.*

Under these circumstances, I am induced to regard the Japanese Pig as a distinct type, and propose to call it *Sus pliciceps* until we receive further information respecting it.

We have in the Museum a very large and a moderate-sized skull of the domestic Pig, slightly differing from the others, and from those figured by Cuvier and De Blainville, in the frontal bone being rather depressed and concave in front of the eyes; but we do not know the particular variety to which these skulls belong. Though they agree with the Japanese Pig in these two circumstances, they differ from it and resemble the skulls of the common Pigs and the Wild Boars of Europe and Asia in all other particulars, and show no other character in common with the Japanese Pig, which is also characterized by its peculiarly wrinkled face, well represented in the figures of these animals published in the 'Proceedings of the Zoological Society' 1861, p. 263, and the 'Illustrated News' January 11, 1862, p. 49.

The species at present is only known in its domesticated state. It may perhaps be the descendant of a species found wild in the valleys of the islands.

In both these skulls of the domestic Pigs the lower jaws are rather higher than usual, particularly at the gonyx; and this is especially the case with the largest skull, which is said to be that of an old Boar. Can the size of the lower jaw be a peculiarity of the male sex? We have not sufficient materials to determine this question, either in the Museum or in the plates that have been published of the skull of the genus *Sus*.

I may further observe, there is considerable difference in the occiput between the European and the Japanese Pig; the processes of the back of the palate are much more erect in the Japanese Pig than in the European and Asiatic Pigs, wild and domesticated.

Though I have only described this animal as a species, it evidently forms a section in the genus by itself. The restricted genus *Sus* may be divided thus:—

1. Face smooth, or nearly so; skull conical; the upper part of the nose rounded; palate narrow. Sus.

Sus scrofa, Sus indicus, Sus vittatus.

2. Face deeply and symmetrically furrowed; the skull flattened on the forehead; the upper part of the nose flattened, keeled on the sides; palate broad. Centuriosus.

Sus pliciceps.

I regard these facts as very interesting, first, as adding a new kind of domestic animal to our list (and I do not think that any has been added since the introduction of the turkey from Mexico); and secondly, as showing, from a domestic animal, that there must be a wild species which has not yet been brought into our catalogues.

I may observe that, like many other very distinct species of certain genera of domesticated or semi-domesticated Mammalia, as the Horse, Ass, and Zebra, the Ox, the Dog, &c., the fact of interbreeding is no proof that a kind is not a species; for no one would

argue that an Ass and a Horse are the same species, or a Zebra and Quagga, or *vice versa*.

The Japanese Pig breeds with facility with the common domestic Pig. We have not had time to observe whether the offspring is prolific. The half-breed of the Japanese Boar with a common Sow retains almost all the external characters of the male parent well developed. I have not yet had the opportunity of observing what effect the crossing has on the osteological characters of the species.

I think that no one who will take the trouble to compare the skulls of the different varieties of domestic Pigs which are usually found in England, with the skull of the European Wild Boars and the Wild Pigs of Asia and the Island, can doubt for a moment the derivation of the domestic breeds from the wild type*. Indeed, the change in form is so slight as to be scarcely perceptible, and the gradation between the most abnormal form to the wild animal so gradual as to be sufficient to show that even the most abnormal state is due only to a gradual change of form.

Mr. Eyton, in a paper printed in the 'Proceedings,' has shown that a Chinese Pig which he examined had a different number of vertebræ from another domestic Pig; but the skull of a Chinese Pig I have examined shows no characters to separate it from the Common Pig. Its head is a little shorter than usual, but not so short as that of a Berkshire Pig.

MISCELLANEOUS.

On the Arrangement of Natural-History Collections.

By L. Agassiz.

[The following extract from the Report of Prof. Agassiz to the Senate and House of Representatives of the United States will prove interesting as giving the views of a distinguished naturalist upon a subject which has lately given rise to much discussion in connexion with our National Museum. Besides this, it will be found that the questions raised have led Prof. Agassiz to express certain opinions upon palæontological matters which cannot but be regarded as of high importance.]

Having given an account of the general plan of the Museum in a former Report, I propose now to lay before you the plan of the arrangement of that part of the collection which is nearly completed. I deem it the more important to explain it fully, as my experience with other museums has satisfied me that collections of natural history are less useful for study in proportion as they are more extensive.

This may seem paradoxical, yet it is undoubtedly true; for while the most extensive collections answer admirably the purposes of professional naturalists for special researches and original investigations, they are generally beyond the grasp of less advanced students, and

* See Bartlett, Proc. Zool. Soc. 1861, pp. 263, 264; Ann. and Mag. N. H. 1861, 501; 1862, 162.